

**ATTACHMENT 2**  
**RESPONSIVENESS SUMMARY**

## RESPONSIVENESS SUMMARY

### 1 Purpose

As stated in the U. S. Environmental Protection Agency (EPA) Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents, the responsiveness summary serves three important purposes. First it provides the DOE with information about community preferences regarding both the proposed remedial alternative and general concerns about the site. Second, it demonstrates how public and support agency comments were integrated into the decision-making process. Third, it allows DOE to formally respond to public comments.

As the lead agency at the FCP, DOE has prepared this Responsiveness Summary to respond to each of the comments submitted by members of the public on the Draft Final Explanation of Significant Differences for Silos 1 and 2.

### 2 Community Participation For Silos 1 and 2

DOE is responsible for conducting the community relations for the FCP. A community relations program was established for the FEMP in 1985 to provide information about the site regarding updates and progress of the clean-up activities.

In November 1993, DOE implemented a public participation program at Fernald to involve community members and other interested parties in the decision-making process at the site. This Fernald Community Advisory Board (FCAB), formerly known as the Fernald Citizens Task Force, was chartered to provide DOE, EPA, and Ohio Environmental Protection Agency (OEPA) with recommendations about cleanup solutions and future courses of action at the FEMP. These efforts, along with the community relations activities required by CERCLA, reflect DOE's intent to fully involve the community in the decision-making process.

1 More recently, DOE has encouraged public involvement and informal comment throughout  
2 reevaluation of the remedy for Silos 1 and 2. Stakeholder input was a key factor in development  
3 of the recommended changes documented in the Draft Final ESD that was issued for formal  
4 review. This approach has provided a genuine opportunity for stakeholders to identify issues,  
5 voice their concerns, and learn about the proposed clean-up plan. The informal opportunity for  
6 the public to provide input enabled DOE to address stakeholder questions and concerns in  
7 advance of the formal public comment period.

8 Two Administrative Records, located at the Public Environmental Information Center at the FCP  
9 and EPA Region V offices in Chicago, Illinois have been established to provide an information  
10 repository on the decision-making process for interested members of the public.

## 11 2.1 Public Comment Period

12 The DOE recently held a public comment period from August 27 through September 26, 2003,  
13 for interested parties to comment on the modified selected remedy for Silos 1 and 2. The public  
14 comment period was held in accordance with Section 117 of CERCLA. A public hearing was  
15 held in the vicinity of the FCP on September 9, 2003 to provide the public with a forum to submit  
16 oral comments on the proposed revised remedy. No written or oral comments were received by  
17 DOE at the Public Hearing. A transcript of the hearing is included in Attachment 2-1 to this  
18 Responsiveness Summary.

19 The availability of the Draft Final ESD and supporting documentation, the schedule for the  
20 comment period, and the location and schedule for the public hearing, were announced in local  
21 newspapers. In addition, this information was announced on the Fernald Closure Project web  
22 site ([www.fernald.gov](http://www.fernald.gov)) and communicated by direct mail to stakeholders on the FCP Public  
23 Affairs mailing list.

## 2.1.1 Responses to Public Comments

Comments were received from only two stakeholders during the public comment period. The comments from these two stakeholders are summarized below, along with DOE's response to each comment. The full text of all written comments received on the Draft Final ESD is provided in Attachment 2-2.

Comment 1 (Gerald L. Gels): In previous comments concerning OU-4, I have noted the need for environmental health physics input. The need for that input is demonstrated again in this ESD (Explanation of Significant Differences). This is particularly troubling since this is a project with the potential for some serious onsite and offsite exposures of workers and the public.

A specific example of the needed input in this document is Section 2.2, entitled, "Contents of Silos 1 and 2." Five radionuclides are mentioned as being present "at significant activity levels." Not even mentioned in this section are radon-222, bismuth-214 and lead-214, as well as the alpha-emitting, short-lived daughters of radium, polonium-218 and polonium-214. These five radionuclides are responsible for the lion's share of potential internal and external exposures, yet are not even mentioned in this section. But actinium-227 is mentioned although it is present at an average concentration of less than 2% of those 5 radionuclides that were not mentioned. Actinium-227 decays 99% of the time by emission of a very low energy beta particle, which can be absorbed by a thin piece of plastic or aluminum and is of no consequence as a source of external exposure.

While these omissions and the inexplicable inclusion of actinium-227 may or may not have an immediate or direct exposure consequence, it indicates that environmental health physics involvement in this project is absent. Has OU-4 planning undergone environmental health physics review by DOE-HQ staff?

Response: The text referenced in this comment is a brief summary of detailed information contained in documents such as the Remedial Investigation (RI) and Feasibility Study (FS) reports for OU4, the Revised FS and ROD Amendment for Silos 1 and 2, and subsequent studies and evaluations. These documents demonstrate that the evaluations supporting selection of the Silos 1 and 2 remedy fully considered the radiological characterization of the Silos 1 and 2 material, including the presence of the specific radionuclides referenced in this comment. Implementation of the selected remedy for Silos 1 and 2 will continue to receive appropriate environmental, safety, and health input and oversight.

Comment 2 (Gerald L. Gels): A second issue that I feel should receive review from the highest levels of DOE is the treatment of the K-65 residues solely as a waste... this material is also a potential resource because of the 4000+ curies of radium-226 contained therein. Nowhere else in this country, and perhaps the world, is there the possibility to recover thousands of grams of an element that may have yet-unrealized medical and research benefits in the near future. There are several simple technological ways to overcome the regulatory problems, and these methods should be strongly preferred over the "low-cost" solution of adding massive amounts of fly-ash to the mixture. In fact, at this point in the removal project, an initial stage of chemical separation of the radium (greatly increasing the radioactivity of the "concentrated" fraction) would make a lot of sense. Lacking that, I would like to see strong consideration given to no additional dilution of the residues. Shipping regulatory problems can be solved in other ways. I think that keeping the chemically stabilized residues in their sealed shipping containers at the disposal site is a responsible decision, one that would facilitate recovery of this material at some time in the future if it becomes necessary or desirable.

Response: As documented in the Responsiveness Summary accompanying the Final ROD Amendment for Silos 1 and 2, the issues raised in this comment were considered by the DOE and the EPA in selecting the current treatment remedy for Silos 1 and 2. The scope of the evaluation which resulted in the current ESD is limited to the criteria for treatment, and the potential location for off-site disposal, and does not include reevaluation of the decision to treat Silos 1 and 2 material by chemical stabilization prior to off-site disposal. The chemically stabilized Silos 1 and 2 material will be disposed in the sealed shipping containers as suggested by the commenter.

Comment 3 (James Curry): Page 3 – Line 13 - DOE does not have the authority to declare the material to be 11e(2) material since this an NRC designation... The statutory exemption from RCRA for pure 11e.(2) material exists only because the material is covered by other statutes which this ESD fails to discuss. Specify what the AEA/NRC rules are so everyone knows what they are, and how DOE will comply with them?...Even if successful in obtaining the authority to designate the material 11e.(2), silo material would certainly have to be designated as *mixed 11e.(2) material* based on this definition which I retrieved from the DOE EM website:

**Mixed 11e(2) Byproduct Material (M11e(2))** represents material that is chemically contaminated with RCRA-hazardous components and is also radioactively contaminated such that it meets the definition of 11e(2) byproduct material, and is therefore regulated under both RCRA and the AEA.

Response: The definition of 11e.(2) byproduct material is provided by the Atomic Energy Act of 1954 as amended (AEA), and arises from the origin of the material in question. The basis for definition of the Silos 1 and 2 material was documented, subjected to public, state, and EPA review, and was approved in the original OU4 RI/FS and Record of Decision, as well as in the subsequent revised FS and ROD Amendment for Silos 1 and 2. As documented in the revised FS for Silos 1 and 2, the presence of natural metals is expected in byproduct material and

invalidates neither the definition as 11e.(2) material nor the resulting exclusion from regulation under RCRA.

As defined by the DOE Radioactive Waste Management Manual, DOE M 435.1-1, mixed byproduct material consists of “11e.(2) byproduct material determined to be manageable as low-level waste that is also **mixed with** constituents covered under RCRA or TSCA.” Since the metals found in the material were present in the natural ore, and no metals from a non-ore source, hazardous waste, or hazardous waste constituents, were added to the stream at any point in the beneficiation process, the Silos 1 and 2 material does not meet the definition of mixed 11e.(2) material.

DOE Order 435.1 provides the basis for management of byproduct materials defined by section 11e.(2) of the Atomic Energy Act of 1954, as amended, at DOE low-level waste facilities. The basis for management and disposal of the materials at a commercial facility would be provided by the applicable NRC or state regulatory agency licensing regulations.

Comment 4 (James Curry): The ESD is deficient since it does not sufficiently explain the differences in packaging and shipping methods. The plan is to ship by rail to expedite shipping and save money. Silo material is not, even after treatment, similar to waste pit material and therefore the hazard analysis developed for rail shipping of pit material is not adequate for silo material. Rail shipment of large inventories of silos materials may present a significant hazard to potential receptors living near the rail right-of-ways as opposed to small, discrete truck shipments.

Response: The remedy defined by the ESD will continue to allow shipment of treated Silos 1 and 2 material to the selected disposal facility by direct rail, direct truck, or a combination of the two (intermodal). Transportation risk calculations indicate that all three modes of transportation can meet applicable Department of Transportation (DOT) regulations and transportation risk criteria. The details of the selected packaging and

transportation mode(s) will be finalized during the remedial design process. These details, as well as demonstration of compliance with DOT regulations and transportation risk criteria will be documented in a Transportation and Disposal Plan to be submitted for regulatory review as a remedial action deliverable.

Comment 5 (James Curry): It appears that the NTS letter attached to the ESD is not based on analysis of the silo waste profile but merely confirms non-mixed 11e.(2) material could be accepted at NTS if it is truly 11e.(2). The statement “*following the completion of the NTS waste approval*” implies that NTS may reject the silo material when they actually review and

1 understand its makeup. Has NTS actually seen and concurred that this material containing,  
2 lead and other hazardous waste constituents in a leachable form, can be disposed of as pure  
3 11e.(2) material?

4 Response: Prior to preparing the letter provided in Attachment 1 of the ESD, NTS personnel  
5 completed an eligibility review of a draft waste profile for Silos 1 and 2 material. The draft profile  
6 contained a detailed description of the origin of the material, as well as data on its chemical and  
7 radiological constituents. Based upon this review, NTS determined that the material is both  
8 exempt from Federal and State of Nevada hazardous waste regulations, and acceptable for  
9 disposal at the NTS. The final waste profile for Silos 1 and 2 material was submitted to the  
10 NTS for formal approval in September 2003, and is currently in the final review and approval  
11 process.

**ATTACHMENT 2-1**

**TRANSCRIPT OF SEPTEMBER 9, 2003 PUBLIC HEARING**



**ATTACHMENT 2-2**

**FULL TEXT OF PUBLIC COMMENTS**

## **Comments on the Draft Final Report Explanation of Significant Differences for**

### **Operable Unit 4 Silos 1 and 2 Remedial Actions**

Gerald L. Gels, CHP  
Cincinnati, Ohio  
September 17, 2003

In previous comments concerning OU-4, I have noted the need for environmental health physics input. The need for that input is demonstrated again in this ESD (Explanation of Significant Differences). This is particularly troubling since this is a project with the potential for some serious onsite and offsite exposures of workers and the public.

A specific example of the needed input in this document is Section 2.2, entitled, "Contents of Silos 1 and 2." Five radionuclides are mentioned as being present "at significant activity levels." Not even mentioned in this section are radon-222, bismuth-214 and lead-214, as well as the alpha-emitting, short-lived daughters of radium, polonium-218 and polonium-214. These five radionuclides are responsible for the lion's share of potential internal and external exposures, yet are not even mentioned in this section. But actinium-227 is mentioned although it is present at an average concentration of less than 2% of those 5 radionuclides that were not mentioned. Actinium-227 decays 99% of the time by emission of a very low energy beta particle, which can be absorbed by a thin piece of plastic or aluminum and is of no consequence as a source of external exposure.

While these omissions and the inexplicable inclusion of actinium-227 may or may not have an immediate or direct exposure consequence, it indicates that environmental health physics involvement in this project is absent. Has OU-4 planning undergone environmental health physics review by DOE-HQ staff? Some decisions such as placement of HEPA filtration at the back end, but not the front end, of the Radon Treatment System, indicate that this has not been done.

A second issue that I feel should receive review from the highest levels of DOE is the treatment of the K-65 residues solely as a waste.

In one sense, this material is a waste product, which should be removed from the FCP site as it is cleaned up. But, in the longer view, this material is also a potential resource because of the 4000+ curies of radium-226 contained therein. Nowhere else in this country, and perhaps the world, is there the possibility to recover thousands of grams of an element that may have yet-unrealized medical and research benefits in the near future. Just a remote possibility of a cure for cancer should be enough reason to keep this material intact in a form that can be recovered if needed. It has already been diluted by more than 10% by the ill-advised addition of bentonite,

and the current plan is to further dilute this material by from 400% to 600% simply to make shipment less difficult from a regulatory point of view.

There are several simple technological ways to overcome the regulatory problems, and these methods should be strongly preferred over the "low-cost" solution of adding massive amounts of fly-ash to the mixture. In fact, at this point in the removal project, an initial stage of chemical separation of the radium (greatly increasing the radioactivity of the "concentrated" fraction) would make a lot of sense. Lacking that, I would like to see strong consideration given to no additional dilution of the residues. Shipping regulatory problems can be solved in other ways. I think that keeping the chemically stabilized residues in their sealed shipping containers at the disposal site is a responsible decision, one that would facilitate recovery of this material at some time in the future if it becomes necessary or desirable.

I appreciate the chance to comment. I would like to see all key decisions involving the radiological nature of the K-65 Silos to be critically reviewed by competent, professional DOE environmental health physicists.

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## WRITTEN COMMENTS RECEIVED 9/26/03 FROM JAMES CURRY

### Comments on the Silos ESD Document

1. Page 3 – Line 13 - DOE does not have the authority to declare the material to be 11e.(2) material since this an NRC designation. I understand DOE has some legislative effort in the works to get authority to make the designation 11e.(2) to avoid meeting RCRA disposal requirements, but at this time does not have that authority.
2. Page 3 – The statement that the material is statutorily exempt from RCRA is very misleading. The statutory exemption from RCRA for pure 11e.(2) material exists only because the material is covered by other statutes which this ESD fails to discuss. Specify what the AEA/NRC rules are so everyone knows what they are, and how DOE will comply with them?
3. Even if successful in obtaining the authority to designate the material 11e.(2), silo material would certainly have to be designated as *mixed 11e.(2) material* based on this definition which I retrieved from the DOE EM website:

**Mixed 11e(2) Byproduct Material (M11e(2))** represents material that is chemically contaminated with RCRA-hazardous components and is also radioactively contaminated such that it meets the definition of 11e(2) byproduct material, and is therefore regulated under both RCRA and the AEA.

4. The ESD is deficient since it does not sufficiently explain the differences in packaging and shipping methods. The plan is to ship by rail to expedite shipping and save money. Silo material is not, even after treatment, similar to waste pit material and therefore the hazard analysis developed for rail shipping of pit material is not adequate for silo material. Rail shipment of large inventories of silos materials may present a significant hazard to potential receptors living near the rail right-of-ways as opposed to small, discrete truck shipments.
5. It appears that the NTS letter attached to the ESD is not based on analysis of the silo waste profile but merely confirms non-mixed 11e.(2) material could be accepted at NTS if it is truly 11e.(2). The statement "*following the completion of the NTS waste approval*" implies that NTS may reject the silo material when they actually review and understand its makeup. Has NTS actually seen and concurred that this material containing, lead and other hazardous waste constituents in a leachable form, can be disposed of as pure 11e.(2) material?